STATE OF MONTANA
MONTANA DEPARTMENT OF TRANSPORTATION
JOB PROFILE

☐ Conversion from PD format
☒ Update
☐ Informal Review
☐ Formal Review

Date Submitted _____

SECTION I - Identification

Working Title:
Materials Inspection Aide (Pavement Rater)

Department:
Transportation

Job Code Number: 173133

Division & Bureau:
Engineering Division
Materials Bureau

Job Code Title:
Design Technician

Section & Unit:
Pavement Analysis Section
Non-Destructive Testing Unit

Pay Band: 3

Work Address:
2701 Prospect Ave.
Helena, MT 59601

Position Number: 90812

Phone: 406-444-6149

☐ FLSA Exempt ☒ FLSA Non-Exempt

☐ Non-Union ☒ MPEA ☐ Blue Collar

Profile Completed By:
Matt Strizich
Materials Bureau Chief

Work Phone:
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Engineering Manager, Pavement Analysis

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Jim Kerins
CMS, LLC

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Work Unit Mission Statement or Functional Description:
The MDT's mission is to serve the public by providing a transportation system and services that emphasize quality, safety, cost effectiveness, economic vitality and sensitivity to the environment.

The Highways and Engineering Division prepares projects for bidding and coordinates highway construction. The Division is made up of the Materials, Construction, Right-of-Way, Bridge, Traffic and Safety, Environmental Services, Engineering Oversight, and Preconstruction bureaus; the CADD Systems and Engineering Management Support sections; and five District Construction Offices in Missoula, Butte, Great Falls, Glendive, and Billings for budget and workforce purposes.

The principal goals of the Materials Bureau of the Department of Transportation are to develop and implement comprehensive data collection, testing, and analysis programs that facilitate pavement project selection and pavement surface and subsurface design that addresses Montana's most important statewide transportation needs and to support the quality of materials incorporated into Montana's highway system. These activities help officials select projects and provide information for short and long-range engineering and construction programs. These goals are addressed through the complex interaction and interrelationship of the Bureau's three Sections. The Bureau consists of the Geotechnical Section, Physical Testing Section, and Pavement Analysis Section.

The Pavement Analysis Section's mission is to gather, arrange, and analyze transportation data in a competent, precise and purposeful manner; provide suitable and cost effective pavement designs and treatments for rehabilitated roadways statewide. The Section collects pavement distresses, stress/strain information, and geotechnical information for existing roadway, current and future traffic, construction phasing and roadway plans and uses deflection data to determine feasible overlay alternatives. The Section develops, maintains, and administers complex, comprehensive data collection and engineering analysis programs and maintains comprehensive condition, deflection, research, and surfacing databases used in highway design, highway maintenance, transportation planning, safety, materials, federal certification, university research, and allocation and distribution of maintenance funds and federal highway funds in accordance with statutory funding formulas. The Section maintains and administers several elements of the MDT Project Management System, Pavement Management System, AASHTO Pavement Design System, Nondestructive Testing Program, Local Transportation Assistance Program, University Research Program, and Materials Information System. The Section is also responsible for providing information and analysis for external customers such as Federal Highways, Federal Forest Service, Federal Park Service, consultants, and Montana County and Local governments in the areas of pavement design, management, and research. The Section evaluates special studies and plans, provides executive management with technical data and analysis for complex, potentially controversial decisions regarding pavement project selection, pavement design, and pavement maintenance and is responsible for the statistical accuracy of reports to MDT executive management, Divisions, and external customers.

Describe the Job's Overall Purpose:

This position serves as a **Road Rater** for the PvMS Management Unit of the MDT Materials Bureau. The position is responsible for conducting field assessments and data collection to accurately determine the severity and extent of pavement distresses and to provide information needed for pavement management and design activities and performing related duties as assigned. The position reports to the PvMS Management Unit Supervisor (#40080).

SECTION II - Major Duties or Responsibilities ***% of Time***

A. PAVEMENT ANALYSIS & DATA COLLECTION 95%

Conduct field assessments and data collection to accurately determine the severity and extent of pavement distresses and to provide information needed for pavement management and design activities.

1. Attend preliminary and ongoing (as required) training and quality assurance exercises to learn and consistently apply rating protocols; ensure the application of proper formulas to calculate percentages and quantify findings; and ensure proper operation of equipment and application of procedures. This includes field and classroom instruction.

2. Receive assignments from the Materials Lab Technician and make travel arrangements to accommodate travel schedules and ensure field activities are carried out in a cost-effective manner. This includes determining required rating, documentation, and data collection activities for project sites through discussion with the supervisor, comparing these requirements to travel and lodging options and travel policies/procedures, reading maps and determining the most efficient way to sequence and travel to sites, making or coordinating travel arrangements, and ensuring the office has contact information (e.g., data collection sites, emergency phone numbers, lodging arrangements, etc.).

3. Select and document sites to ensure the proper location is evaluated and documented. This involves determining the appropriate section and area for sampling; stopping at appropriate mile posts and pacing out the appropriate sample section; and accurately recording the location of each sampling section using Departmental corridor route naming, mileposts, and lane identification criteria.

4. Implement appropriate traffic control and safety measures to ensure personal and public safety while conducting data collection on active roadways. This includes ensuring appropriate signing and other traffic control measures are in place, observing traffic during the performance of duties, using good judgment concerning safety while working next to high-speed traffic, and coordinating with the supervisor or law enforcement as needed.

5. Conduct road rating activities by determining the type, description, severity levels, and quantification of each distress observed, and recording the information in a PDA. This requires interpretation of roadway conditions in relation to a definition of each distress type followed by identification of severity and extent levels.

6. Use judgment to determine the type of defect, the severity of the defect, and the severity to which the road surface is affected by the defect. This requires identification of the predominant severity and the extent of severity associated with each distress type; observing the entire area of the traveled roadway segment to determine the defect severities and extent over the full pavement area; rating the average width of cracks (e.g., determining whether cracks are traverse or fatigue cracks; identifying combinations of alligator A, B, C, cracks; determining the severity of cracks; etc.).

7. Accurately measure and record pavement features by operating basic measurement devices including tape measures, width gauges, and distance measuring instruments; and by applying math functions and established data recording protocols. Quantify field data using math functions with an understanding of fractions and percentages; and enter all information

regarding pavement condition in the PDA. Return PDAs to the headquarters office so information can be downloaded into the database.

8. Ensure the proper operation and routine maintenance of assigned vehicles and equipment. This includes scheduling repair and maintenance work for the vehicle and adjusting, maintaining, and cleaning equipment to assure proper calibration, operation, and safety.

B. OTHER DUTIES AS ASSIGNED 5%

Perform a variety of other technical and administrative work in support of section activities as assigned by the supervisor. This includes assisting other MDT programs on special projects, providing training and guidance to other employees, filling in for other employees, running the profiler as assigned, attending training and education as required, and providing road rating information.

2. Specific examples of problems solved, decisions made, or procedures followed when performing the most frequent duties of this position include:

Problems solved include determining the predominant type of defect, classifying combinations of defects, and determining the appropriate classification of roadway features given unique site characteristics while working alone. Decisions made include properly interpreting and applying department criteria and classifications to roadway features; determining the type of defect; the severity of the defect; and the severity to which the road surface is affected by the defect. Procedures followed when performing the most frequent duties include mathematical formulas, pavement rating and classification manuals and guidelines, department travel policies and procedures, and data collection and recording procedures.

3. The most complicated aspect of this position is:

The most complex aspect of the position involves the concurrent analysis of the type, severity, and extent of distresses in order to accurately identify and record them. This is complex due to the varying features and circumstances associated with each site. Certain distresses may involve multiple features (longitudinal, fatigue, transverse, etc.) and the fact that field conditions are never as “clear cut” as established criteria and protocols.

4. Guidelines, manuals, or written procedures that support this position include:

Available guidelines, manuals, and written procedures include available to the incumbent include Engineering Division objectives and Materials Bureau goals; State, federal, AASHTO, and FHWA standards; project specifications; Montana Materials Manual, the Montana Construction Manual, and materials specifications. The position may also refer to technical software and equipment manuals as necessary to resolve system errors or operational problems.

5. The following duties and/or specific tasks listed under 1 above are considered “essential functions” because they require specialized expertise and skill and are the primary reasons the job exists (they must be performed by this position with or without accommodations):

The following duties are considered essential functions because they require specialized expertise and skill and are the primary reasons the job exists:

Duty A: **PAVEMENT ANALYSIS & DATA COLLECTION**

The following mental and physical demands are associated with these essential functions:

PHYSICAL

- Heavy independent lifting (up to 75 lbs.) of equipment, material samples, etc.
- Conducting field work on active roadways for extended periods of time, with continual walking; standing; bending
- Extensive travel (more than 1,000 miles/week avg.) within the state to project locations by auto.
- Ability to walk over uneven terrain or in water
- Operating a personal computer and PDA
- Communicating in writing, in person and over the phone
- Continual walking or standing
- Exposure to extreme weather and high-speed traffic
- Operation of motor vehicles
- Operation of power tools and/or equipment
- Communicate in writing, in person, and over the phone

MENTAL

- Computing arithmetic operations
- Comparing data
- Compiling information, Analyzing, Coordinating, Synthesizing
- Ability to multi-task
- Ability to meet inflexible deadlines
- Decision-making that affects the public health and safety
- Interpersonal skills/behaviors
- Dealing with the public on a regular basis
- Demands for accuracy in all aspects of work
- Ability to meet inflexible deadlines

6. Does this position supervise others? ☐ **Yes** ☒ **No**

Number directly supervised: N/A

Complexity level and position numbers of the positions supervised:

7. This position is responsible for:

☐ Hiring ☐ Recommends Termination ☐ Supervision ☐ Pay Level
☐ Performance Management ☐ Promotions ☐ Discipline
☐ Other:

8. Attach an Organizational Chart.
ATTACHED

SECTION III - Minimum Qualifications - List minimum requirements for the first day of work.

Critical knowledge and skills required for this position:

KNOWLEDGE:
This position requires knowledge of the procedures and sources of information related to identifying pavement distress types and defining the levels of severity and extent associated with each distress; mathematical calculations including fractions and percentages; safety and traffic control protocols and procedures; state travel and expense policies and procedures; the operation of a PDA, calculator, tape measures, width gauges, and distance measuring instruments; and knowledge of basic vehicle maintenance.

SKILLS:
This position requires skill in the use and operation of measurement instruments of all types; operating computers and field equipment and software; and in reading and interpreting maps.

Behaviors required to perform these duties?

CUSTOMER ORIENTATION/SERVICE
Creates an atmosphere in which timely and high quality information flows smoothly between self and customer. Encourages open, honest and constructive expression of ideas and opinions. Demonstrates active listening skills. Uses appropriate body language. Seeks to understand others' viewpoint. Analyzes the customer needs and adjusts to the perspective of the customer, when appropriate.

DECISION MAKING
Independently takes action and responsibility for solving problems. Makes decisions designed to achieve desired outcomes**.** Challenges the status quo by taking calculated actions in complex, ambiguous, contentious or hazardous situations to force an issue or set a direction.

PERSONAL ACCOUNTABILITY AND OWNERSHIP
Takes pride in the job. Actively engages in professional self-development opportunities. Accepts individual responsibility for all actions taken.

LEADERSHIP
Shares information, feedback and knowledge (two-way communication) with key persons inside and outside of the organization to ensure successful project outcomes and/or improvement. Includes training, teaching and coaching others. Actively steps into a leadership role.

ETHICS
Models high standards of honesty, integrity, trust, and openness. Knows, understands, and follows through with the correct standards of conduct and moral judgment required; is willing to act outside the norm when needed to adhere to ethical principles. Communicates and demonstrates actions in a consistent manner. Respects others, regardless of individual capabilities, agendas, opinions or needs.

FLEXIBILITY AND ADAPTABILITY
Accepts change as a healthy and normal part of growth. Receptive to new information and recognizes the validity of various viewpoints; sees situations objectively. Responds positively to changes in direction and priorities, responsibilities or assignments. Adjusts to multiple demands, priorities, ambiguity and change positively. Works effectively within a variety of situations, individuals or groups.

TEAMWORK
Works cooperatively with others as part of a team as opposed to separately or competitively.

CREATIVITY AND PROBLEM-SOLVING
Generates ideas, fresh perspectives and original approaches; open-minded. Uses creativity and originality when problem-solving. Goes beyond traditional ways to address issues and problems.

Education:
Check the one box indicating minimum education requirements for this position for a new employee the first day of work:

- ☐ No education required
- ☒ High school diploma or equivalent
- ☐ 1-year related college/voc. training
- ☐ Related AAS/2-years college/vocational training
- ☐ Related Bachelor's Degree
- ☐ Related Master's degree

Please specify the acceptable and related fields of study:

Required/Acceptable:

Related: None Specified.

Other education, training, certification, or licensing required (specify): A valid Montana's Driver's License is required.

Experience:
Check the one box indicating minimum work-related experience requirements for this position for a new employee the first day of work:

- ☐ No prior experience required
- ☐ 1 year
- ☒ 2 years
- ☐ 3 years
- ☐ 4 years
- ☐ 5 or more years

Other specific experience (optional): Two (2) years of progressively responsible experience including experience working independently and experience with basic math.

Alternative Qualifications:
This agency will accept alternative methods of obtaining necessary qualifications
☒ Yes ☐ No

Alternative qualifications include:
Post secondary education may be credited toward work experience for this position.

SECTION IV – Other Important Job Information

Essential functions involve significant physical demands related to lifting and carrying equipment over rough terrain, climbing and bending, extensive overnight travel throughout the state in excess of 1,200 miles per month (often on short notice, weekends, and holidays), and working outdoors in all types of weather.

The work environment involves dust, extreme temperatures, wind, rain, and snow. Hazards associated with the work can be significant. The majority of the work is performed at active roadways with exposure to high-speed traffic. The risks of the work are such that extensive training in safety practices and procedures is required. Due to the nature of work elements and hazardous tasks such as work around moving traffic there is potential for significant personal injury.

SECTION V – Signatures

Signature indicates this statement is accurate and complete.

Employee:

Name: _____ Title: _____

Signature: _____ Date: _____

Immediate Supervisor:

Name: _____ Title: _____

Signature: _____ Date: _____

Division/District Administrator:

Name: _____ Title: _____

Signature: _____ Date: _____

Department Designee:

Jennifer Jensen Administrator, Human Resources Division

Signature: _____ Date: _____